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Running head: AFFECT REGULATION AND RISK-TAKING

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Beyond sensation seeking: Affect regulation as a framework for predicting risk-taking behaviors in high-risk sport

Abstract

Sensation seeking has been widely studied when investigating individual differences in the propensity for taking risks. However, risk-taking can serve many different goals beyond the simple management of physiological arousal. The present study is an investigation of affect self-regulation as a predictor of risk-taking behaviors in high-risk sport. Risk-taking behaviors, negative affectivity, escape self-awareness strategy, and sensation seeking data were obtained from 265 high-risk sportsmen. Moderated hierarchical regression analysis revealed significant main and interaction effects of negative affectivity and escape self-awareness strategy in predicting risk-taking behaviors: high-risk sportsmen's negative affectivity leads them to adopt risk-taking behaviors only if they also use escape self-awareness strategy. Furthermore, the affective model remained significant when controlling for sensation seeking. The present study contributes to an in-depth understanding of risk-taking in high-risk sport.

Keywords: risk, negative affectivity, escape self-awareness, sensation seeking, high-risk sports

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Most studies investigating individual differences in the propensity for risk-taking have focused on sensation seeking (Ferrando & Chico, 2001; Zuckerman, 2007). This is because taking risks (e.g., substance abuse, reckless driving, risky sexual behaviors, high-risk sport; Zuckerman, 2007) is an obvious way to experience feelings that *increase* physiological arousal (Arnett, 1996; Zuckerman, 1994).

Recent research suggests that risk-taking behaviors can serve many different goals or functions in addition to the management of physiological arousal states (Cooper, Agocha, & Sheldon, 2000; Shapiro, Siegel, Scovill, & Hays, 1998). Some studies suggest that high-risk behaviors may reflect a means of affect self-regulation with individuals benefiting from a risk-associated *reduction* in negative affect (Castanier, Le Scanff, & Woodman, in press-a; Cooper et al., 2000; Woodman, Huggins, Le Scanff, & Cazenave, 2009). Other research stresses the relationship between negative affectivity (i.e., a general tendency to feel negative affect) and risk-taking, where a negative mood leads to an increase in risk-taking behaviors (Bonnet, Pedinielli, Romain, & Rouan, 2003; Desrichard & Denarié, 2005).

Various strategies may be used to deal with negative affect (Larsen & Prizmic, 2004). For example, Taylor and Hamilton (1997; see also Carver & Scheier, 1981) suggested that some individuals may engage in risk-taking behaviors as a means of regulating their negative affect by escaping self-awareness. That is, people may use high-risk activities as an escape strategy to turn attention away from the self so as not to think of their ill-being (Taylor & Hamilton, 1997). Thus, one would expect individuals combining negative affectivity and escape strategy to have a high propensity for risk-taking.

According to Taylor and Hamilton (1997), the use of the escape from self-awareness strategy favors the involvement of socially unacceptable risk-taking behaviors such as alcohol

abuse and drug taking. Despite this attempt at an activity-specific classification, recent research suggests that the involvement in more socially accepted high-risk activities such as high-risk sports may also serve an escape strategy to cope with negative affects for some individuals (Castanier et al., in press-a; Cazenave, Le Scanff, & Woodman, 2007). Furthermore, while some high-risk athletes minimize risk as much as possible, others may deliberately engage in risk-taking behaviors within an already high-risk activity. Given the life threatening consequences of risk-taking enacted in high-risk sport (Bonnet et al., 2003), it is important to understand the factors that might lead an individual to adopt them.

The first aim here is to investigate the affect regulation framework as a predictor of risk-taking behaviors in high-risk sport. We expected a negative affectivity \times escape strategy interaction in predicting risk-taking behaviors. Second, given that high-risk sports have typically been investigated using a sensation seeking framework, it is important to determine the degree to which affect regulation remains a predictor of risk-taking once this individual difference variable has been accounted for. We hypothesized that negative affectivity and escape strategy would predict risk-taking behaviors beyond sensation seeking.

Method

Participants and procedure

Of the 300 people originally contacted via internet forums of high-risk sports (national forums of high-risk sports in general and of specific high-risk sports), 274 (91.3%) agreed to participate in the study, completed a written informed consent form, and provided complete data. As previous research has shown sex differences in risk-taking (e.g., Kontos, 2004) the few women participants ($N = 9$) were excluded from the study. The final sample comprised 265 French men who declared that they were currently practicing one of the five following high-risk sports as their main sport activity: downhill skiing ($n = 42$), mountaineering ($n = 102$), rock climbing ($n = 31$), paragliding ($n = 32$), or skydiving ($n =$

58). *T*-tests revealed that these high-risk sport groups did not differ significantly in age ($M_{\text{age}} = 32.3$ years, $SD = 10.2$), experience ($M_{\text{experience}} = 10.4$ years, $SD = 7.3$), or ability level (self-assessment rated on a five-point Likert scale from 1 “*novice*” to 5 “*expert*”, $M = 4.1$; $SD = 1.3$), all $ps > .05$. The initial contact included a presentation of the study purpose and an assurance of confidentiality. Next, each participant was mailed a five-page questionnaire. Participants’ answers were returned by post or electronic mail.

Measures

Risk-taking behaviors scale. Because the objective surveillance of the large cohort of participants over time was logistically untenable (Westaby & Lowe, 2005), we used a three-item scale to measure risk-taking behaviors (Lafollie & Le Scanff, 2007). The items of this scale are: “When practicing my high-risk sport I have sometimes been involved in accidents (during last two years) that are caused by my somewhat irresponsible attitude”; “I think I am very careful and far-sighted when I practice my high-risk sport” (reverse scored); “My friends or colleagues who are experts in the activity think that I take too many risks when I practice my high-risk sport”. Each item was scored on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach alpha in the present study was .70.

Positive and Negative Emotionality Inventory. Negative affectivity was measured via the two-factor Positive and Negative Emotionality Inventory (Pelissolo, Rolland, Perez-Diaz, Jouvent, & Allilaire, 2007). The negative affectivity factor of this instrument comprises 18 items rated on a 7-point Likert scale from 1 (*never*) to 7 (*several times per day*), assessing individuals’ general tendency to feel negative affect (e.g., anxiety, anger, shame, sadness). Cronbach’s alpha for the present study was .91.

Risk and Excitement Inventory (REI). The escape self-awareness strategy was assessed using the Risk and Excitement Inventory (Lafollie, Le Scanff, & Fontayne, 2008; Taylor & Hamilton, 1997). The escape strategy sub-scale of the REI contains 6 items rated on

a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*exactly true*). Cronbach's alpha for the present study was .74.

Sensation Seeking Scale (SSS-V). Sensation seeking was measured with the French version of the SSS-V (Carton, Jouvent, & Widlocher, 1992; Zuckerman, Eysenck, & Eysenck, 1978). The SSS-V comprises 40 items, requiring forced-choice responses between two different statements describing a sensation seeking behavior or a non-sensation seeking behavior. Cronbach's alpha for the present study was .76.

Results

The assumptions of parametric and multivariate analysis (cf. Tabachnick & Fidell, 2001) were satisfied for the present data set. All variables were centered before being subjected to moderated hierarchical regression analyses. For each analysis risk-taking behaviors were the criterion variable. Previous research findings suggest that risk-taking behaviors generally decline with age (Nicholson, Soane, Fenton-O'Creevy, & Willman, 2005). Thus, age was entered in the first step of each analysis. Experience and ability were also controlled in the first step of analyses. Table 1 shows the descriptive statistics and zero-order correlations.

Affect self-regulation as a predictor of risk-taking behaviors

A moderated hierarchical regression analysis was conducted to test the main and interaction effects of negative affectivity and escape self-awareness strategy on risk-taking behaviors. After controlling for age, experience and ability, both these variables were entered in the analysis in the second step and their interaction in the third step. Entered in the first step of the analysis age, experience and ability accounted for 3% of the variance, $F(3, 261) = 2.65, p < .05$. Age was a significant predictor of risk-taking behaviors, $\beta = -.12, p < .05$; younger people engaged in greater risk-taking behaviors. Experience and ability were not significant predictors. When the affective variables were entered in the second step, the

analysis revealed an incremental proportion of variance ($\Delta R^2 = .09, p < .001$), with significant contributions of negative affectivity ($\beta = .15, p < .05$) and escape strategy ($\beta = .24, p < .001$). Entered in the third step, the negative affectivity \times escape strategy interaction accounted for a significant proportion of variance over and above the main effects, $\Delta R^2 = .03, p < .01, \beta = .17, p < .01$. As depicted in Figure 1, negative affectivity lead to risk-taking behaviors only when combined with an escape from self-awareness strategy. The global affective model explained 15% of risk-taking behaviors variance, $F(6, 258) = 7.52, p < .001$.

Beyond sensation seeking

To test the additional contribution of the affective model beyond sensation seeking, negative affectivity, escape strategy and their interaction were entered simultaneously in the third step of a new hierarchical regression analysis, after having controlled for the effects of age, experience and ability in the first step and sensation seeking in the second step. After controlling for age, experience and ability, sensation seeking significantly predicted risk-taking behaviors, $\Delta R^2 = .03, p < .01, \beta = .19, p < .01$. Of more central interest, the main and interaction effects of negative affectivity and escape strategy accounted for a significant proportion of variance over and above sensation seeking, $\Delta R^2 = .09, p < .001$. In the final model, negative affectivity ($\beta = .16, p < .01$), escape strategy ($\beta = .19, p < .01$), and the interaction term ($\beta = .17, p < .01$) remained significant, whereas the effects of sensation seeking became non-significant.

Discussion

The present study sought first to examine the affect regulation framework as a predictor of risk-taking behaviors in high-risk sports. In line with our first hypothesis, results revealed a negative affectivity \times escape strategy interaction in predicting risk-taking behaviors: high-risk sportsmen's negative affectivity leads them to adopt risk-taking behaviors only if they also use escape self-awareness strategy.

1 The adoption of risk-taking behaviors in high-risk sports served an affect regulation
2 function only for those individuals who cope with their dysphoric mood by turning attention
3 away from the self (i.e., escape from self-awareness). At first, this seems counter to Taylor
4 and Hamilton's (1997) unsubstantiated view that involvement in high-risk sport should be
5 globally linked to a compensation self-regulation strategy. However, Taylor and Hamilton
6 seemingly ignored the fact that there may be different types of behaviors and self-regulation
7 strategies within the same activity. The present data certainly show that activity-based
8 classifications are simplistic and that high-risk sport can also serve an escape strategy to cope
9 with negative affects. Indeed, focusing on bodily sensations caused by risk-taking behaviors
10 adopted in high-risk sports may serve to divert people's attention from their ill-being and
11 problems (Taylor & Hamilton, 1997). The immediate experience of sensations would thus
12 allow then to keep these feelings at a distance, at least temporarily (Castanier et al., in press-
13 a; Woodman et al., 2009). Conversely, individuals who rely less on an escape from self-
14 awareness strategy are likely more able to face their emotional difficulties and to cope
15 directly with them, finding social support and opportunities to enhance self-esteem in their
16 environment (e.g., work, family, friends; Woodman, Hardy, Barlow, & Le Scanff, in press).

17 The second aim of this study was to examine the contribution of emotion regulation to
18 risk-taking behaviors over and above sensation seeking. People engage in risk-taking
19 behaviors because such behaviors offer rewards that are both physiological (Jessor, 1991;
20 Slanger & Rudestam, 1997; Zuckerman, 1994) and affective (Cooper et al., 2000). The
21 results support the position that the affective reward is not simply a reflection of a
22 physiological sensation seeking drive. Thus, although risk-taking in the high-risk sport
23 domain may serve to regulate physiological arousal states (Cooper et al., 2000; Shapiro et al.,
24 1998), it also serves an affect regulation function (Woodman, Cazenave, & Le Scanff, 2008;

Woodman et al., in press) notably for individuals who use an escape from self-awareness strategy to cope with their negative affectivity (Castanier et al., in press-a).

Despite some promising results, the current study has several limitations that should be considered. First, the cross-sectional nature of the research precludes drawing causal inferences regarding the relationships between the predictor variables and risk-taking. Second, whereas in some domains such as road traffic risk-taking behaviors are readily observed (e.g., road violations) and assessed (e.g., driving simulator), the specificity of the high-risk sports environment makes the identification and measurement of risk-taking more complex. In the present study, a subjective self-report measurement (Lafollie & Le Scanff, 2007) was used to evaluate risk-taking behaviors. Future research may wish to rely on assessments other than subjective self-reports to study risk-taking behaviors in high-risk sports. Previous research has typically sought to circumvent this limitation by asking participants to report the injuries and accidents that they have experienced as a result of practicing the activity (e.g., Castanier, Le Scanff, & Woodman, in press-b; Cogan & Brown, 1999). However, more direct assessments (e.g., peer judgment, objective criteria observation, simulator) and in-depth interviews will likely help to further our understanding of these sportspeople's experience of, and motivation for, risk-taking. Finally, as the population study included only men, we cannot generalize the results to women (see also Cazenave et al., 2007; Woodman et al., 2008).

The findings of the present study contribute to an in-depth understanding of risk-taking behavior in high-risk sport and this research is a first step toward the identification of several psychological predictors of this dimension. Future research on emotional and interpersonal difficulties (e.g., family, professional, friendships; cf. Woodman et al., in press) should be conducted to better understand the underlying motivation for risk-taking behaviors in high-risk sport.

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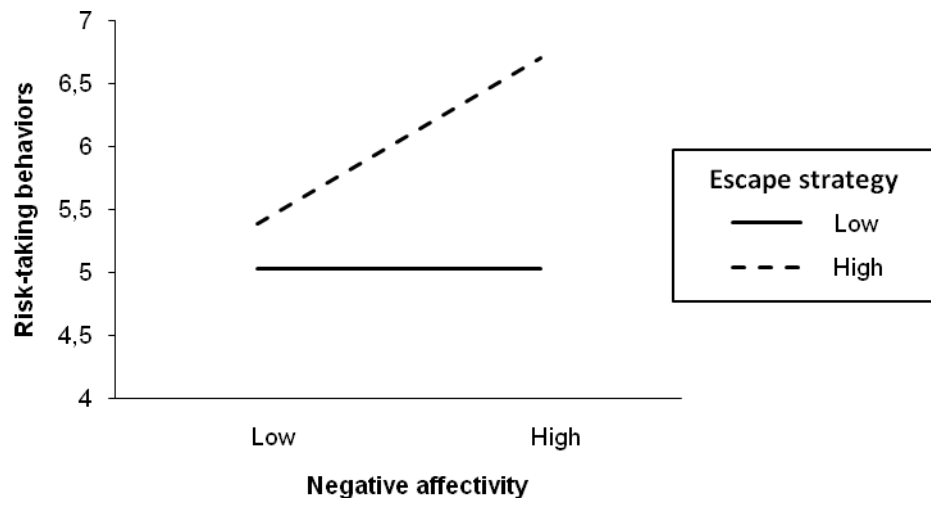
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Figure Caption

Figure 1. Interaction between negative affectivity and escape self-awareness strategy upon risk-taking behaviors (Regression slopes are derived from hypothetical individuals who are one standard deviation below the mean [low] or one standard deviation above the mean [high]).

1



2

3

1 Table 1

2 Means (M), standard deviation (SD) and zero-order correlations (N = 265).

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Age	32.27	10.18	-					
2. Experience	10.41	7.26	.08	-				
3. Ability	4.13	1.28	.10	.20**	-			
4. Risk-taking behaviors	5.43	2.14	-.12*	-.09	-.10	-		
5. Negative affectivity	24.46	13.18	-.25***	-.01	-.03	.20**	-	
6. Escape strategy	15.12	4.40	-.21**	-.02	-.05	.28***	.18**	-
7. Sensation seeking	24.77	5.07	-.13*	.04	.01	.20**	.04	.55***

3 Note: * $p < .05$; ** $p < .01$; *** $p < .001$.